

Amendments to the Claims

Claims 1-30 remain in the application. Claims 1, 5, 8, 12-15, 18, 22-28 have been amended. No claims have been added. No claims have been canceled. A listing of claims follows and will replace all prior versions, and listings, in the application.

Listing of Claims:

1. (Currently Amended) A machine-readable medium that provides instructions, which when executed by a set of processors, cause said set of processors to perform operations comprising:
 - establishing a session at a data link layer between a host and a remote access concentrator through a customer premise equipment, the customer premise equipment is separate from the host;
 - determining a set of network layer information corresponding to the session; and
 - applying the set of network layer information to the host at the data link layer to insert a route to at least one content server, the at least one content server being identified by the set of network layer information.
2. (Original) The machine-readable medium of claim 1 wherein the session is a Point to Point Protocol over Ethernet session.
3. (Previously Presented) The machine-readable medium of claim 1 further comprising:
 - establishing a second session at the data link layer between the host and the remote access concentrator;
 - determining a second set of network layer information corresponding to the second session; and
 - applying the second set of network layer information to the host at the data link

layer to insert a second route to at least one further content server, the at least one further content server being identified by the second set of network layer information.

4. (Previously Presented) The machine-readable medium of claim 1 further comprising:

establishing a second session at the data link layer between the host and a second remote access concentrator;

determining a second set of network layer information corresponding to the second session; and

applying the second set of network layer information to the host at the data link layer to insert a second route to at least one further content server, the further content server being identified by the second set of network layer information.

5. (Currently Amended) A machine-readable medium that provides instructions, which when executed by a set of processors, cause said set of processors to perform operations comprising:

establishing a first session with a data link layer protocol between a host and a first remote access concentrator through a customer premise equipment, the customer premise is equipment separate from the host;

determining a first set of network layer information for the first session;

establishing a second session with the data link layer protocol between the host and a second remote access concentrator through the customer premise equipment without terminating the first session; and

determining a second set of network layer information for the second session.

6. (Previously Presented) The machine-readable medium of claim 5 wherein the second remote access concentrator is the first remote access concentrator.

7. (Original) The machine-readable medium of claim 5 wherein the data link layer protocol is Point to Point Protocol over Ethernet.

8. (Currently Amended) A machine-readable medium that provides instructions, which when executed by a set of processors, cause said set of processors to perform operations comprising:

establishing a communications session between a host and a remote access concentrator through a customer premise equipment under a first of a plurality of accounts, where the customer premise equipment is separate from the host;

retrieving a set of network layer information corresponding to the first account;

creating a message having the set of network layer information within a data link layer of the message;

transmitting the message from the remote access concentrator to the host;

extracting the set of network layer information from the message at the data link layer; and

applying the set of network layer information to the host to insert, into the host, a route.

9. (Original) The machine-readable medium of claim 8 wherein the communications session is a Point to Point Protocol over Ethernet session.

10. (Previously Presented) The machine-readable medium of claim 8 further comprising:

establishing a second communications session between the host and the remote access concentrator through the customer premise equipment under a second of the plurality of accounts without terminating the first communication session;

retrieving a second set of network layer information, the second set of network information corresponding to the second account;

creating a second message having the second set of network layer information within a data link layer of the message;

transmitting the second message from the remote access concentrator to the host;

extracting the second set of network layer information from the second message;

and

applying the second set of network layer information to the host.

11. (Previously Presented) The machine-readable medium of claim 8 further comprising:

establishing a second communications session between the host and a second remote access concentrator through a customer premise equipment under a second of the plurality of accounts without terminating the first communication session;

retrieving a second set of network layer information, the second set of network information corresponding to the second account;

creating a second message having the second set of network layer information within a data link layer of the message;

transmitting the second message from the second remote access concentrator to the host;

extracting the second set of network layer information from the second message;

and

applying the second set of network layer information to the host.

12. (Currently Amended) A machine-readable medium that provides instructions, which when executed by a set of processors, cause said set of processors to perform operations comprising:

establishing a Point to Point Protocol over Ethernet (PPPoE) session between a host to a remote access concentrator through a customer premise equipment, the PPPoE session being associated to an account, where the customer premise equipment is separate from the host;

determining a set of network layer information corresponding to the account in the PPPoE session; and

applying the set of network layer information to the host to insert, into the host, a route.

13. (Currently Amended) The machine-readable medium of claim 12 further comprising:

establishing a second PPPoE session between the host and the remote access concentrator, the second PPPoE session being associated to a second account;
determining a second set of network layer information corresponding to the second account; and
applying the second set of network layer information to the host in the PPPoE session.

14. (Currently Amended) The machine-readable medium of claim 12 further comprising:

establishing a second PPPoE session between the host and a second remote access concentrator, the second PPPoE session being associated to a second account;
determining a second set of network layer information corresponding to the second account; and
applying the second set of network layer information to the host in the PPPoE session.

15. (Currently Amended) An apparatus comprising:

a storage to store a set of network layer information;
a communications module coupled to the storage, the communications module to establish a communications session at a data link layer and perform network control protocol negotiation for the communications session; and
a processing unit coupled to the communications module and the storage, the processing unit to create a message having a subset of the set of network layer information within a data link layer of the message and to transmit the message in the communications session to a host, wherein the subset specifies a route from the host to a server associated through a customer premise equipment with the session, the customer premise equipment is separate from the host.

16. (Original) The apparatus of claim 15 wherein the communications session is a Point to Point Protocol over Ethernet session.

17. (Previously Presented) The apparatus of claim 15 further comprising:
the communications module to establish a second communications session; and
the processing unit to create a second message having a second subset of the set
of network layer information and to transmit the second message in the
second communications session.

18. (Currently Amended) A computer implemented method comprising:
establishing a session at a data link layer between a host and a remote access
concentrator through a customer premise equipment, the customer premise
equipment is separate from the host;
determining a set of network layer information corresponding to the session; and
applying the set of network layer information to the host at the data link layer to
insert, into the host, a route to one of a plurality of content servers, the one of a plurality
of content servers being identified by the set of network layer information.

19. (Original) The computer implemented method of claim 18 wherein the
session is a Point to Point Protocol over Ethernet session.

20. (Original) The computer implemented method of claim 18 further
comprising:
establishing a second session at the data link layer between the host and the
remote access concentrator;
determining a second set of network layer information corresponding to the
second session; and
applying the second set of network layer information to the host at the data link
layer.

21. (Original) The computer implemented method of claim 18 further comprising:
- establishing a second session at the data link layer between the host and a second remote access concentrator;
 - determining a second set of network layer information corresponding to the second session; and
 - applying the second set of network layer information to the host at the data link layer.
22. (Currently Amended) A method comprising:
- establishing multiple simultaneous PPPoE sessions for a single host to access a plurality of content servers through a set of one or more network elements, wherein one of the network elements in the set of network elements performs the following during the establishment of each of the PPPoE sessions,
 - accessing network layer information previously entered for an account associated to the PPPoE session, wherein different accounts for different ones of the plurality of content servers include distinguishing network layer information, wherein each of the PPPoE sessions is associated to a different one of the accounts,
 - creating a control protocol message with the accessed network layer information embedded, and
 - transmitting the control protocol message to the host.
23. (Currently Amended) The method of claim 22, wherein the accessed network layer information is embedded in a data link layer of the control protocol message.
24. (Currently Amended) The method of claim 22, further comprising:
- storing the previously entered network layer information in a database.
25. (Currently Amended) A method comprising:

a single host establishing multiple simultaneous PPPoE sessions for access to different ones of a plurality of content servers through a set of one or more remote access concentrators, wherein different accounts for different ones of the plurality of content servers include distinguishing network layer information, wherein each of the PPPoE sessions is associated to a different one of the accounts, wherein the single host performs the following during establishment of each of the PPPoE sessions,

receiving from one of the set of remote access concentrators a control protocol message in which is embedded at least some of the distinguishing network layer information for the account accessed for the PPPoE session by the remote access concentrator, and
inserting a route to the one of the plurality of content servers identified by that network layer information.

26. (Currently Amended) The method of claim 25, wherein the network layer information is embedded in a data link layer of the control protocol message.

27. (Currently Amended) The method of claim 25, wherein the distinguishing network layer information is stored in a database that is external to the set of one or more remote access concentrators.

28. (Currently Amended) A network environment comprising:
a host device to distinguish simultaneous PPP sessions based on messages having network data embedded within a data link layer of the messages;
a database to associate different network data to different ones of a plurality of content servers; and
a network element to communicatively couple the host device through a network to different ones of the plurality of content servers to access the database to create and transmit the messages to the host;
~~a database to associate different network data to different ones of a plurality of content servers.~~

29. (Previously Presented) The network environment of claim 28, wherein each message is unique to one of the content servers.

30. (Previously Presented) The network environment of claim 28, wherein the network data is accessed based on account information provided by the host device.